CLAIMS

What is claimed is:

1. An endovascular implant for applying an active substance into the media of a blood vessel, said implant comprising:

a base body which has a plurality of microdevices for applying the active substance disposed at least in portion-wise manner at a surface of the implant adapted for facing towards the blood vessel, wherein each said microdevice includes at least one microcannula which is raised out of the implant surface to such an extent that, when the implant bears in surface contact against a wall of the blood vessel, the microcannula penetrates into the media of the blood vessel, and

at least one deposit of the active substance which is in communication with at least one said microcannula.

2. The implant of claim 1, wherein:
the microcannulae are of a length of 100 - 400 μm.

3. The implant of claim 2, wherein:
the microcannulae are of a length of 150 - 300 μm.

4. The implant of claim 3, wherein:
the microcannulae are of a length of 180 - 250 μm.

5. The implant of claim 2, wherein:
the microcannulae are of a diameter of 20 - 200 μm.

6. The implant of claim 1, wherein:
the microdevices are component parts of the base body.

7. The implant of claim 5, wherein:
the microdevices are component parts of the base body.

8. The implant of claim 5, wherein:

the microdevices are applied to the base body using hybrid technology.

9. The implant of claim 1, wherein:

the microdevices are applied to the base body using hybrid technology.

10. The implant of claim 5, wherein:

a liberation behaviour in respect of the at least one active substance to be deposited is so established that the at least one active substance is liberated only after penetration of the microcannulae into the media of the blood vessel.

11. The implant of claim 1, wherein:

the at least one active substance to be deposited is liberated only after penetration of the microcannulae into the media of the blood vessel.

12. The implant of claim 10, wherein:

a cover layer of a biodegradable material closes the plurality of microdevices after the at least one active substance has been introduced into the active substance deposit.

13. The implant of claim 11, wherein:

a cover layer of a biodegradable material closes the plurality of microdevices after the at least one active substance has been introduced into the active substance deposit.

14. The implant of claim 10, wherein:

the at least one active substance is embedded in a biodegradable drug carrier.

15. The implant of claim 11, wherein:

the at least one active substance is embedded in a biodegradable drug carrier.

16. The implant of claim 10, wherein:

a plurality of active substances are introduced into the active substance deposit such that stepwise liberation of the active substances occurs.

17. The implant of claim 11, wherein:

a plurality of active substances are introduced into the active substance deposit such that stepwise liberation of the active substances occurs.

18. The implant of claim 16, wherein:

a plurality of layers of biodegradable drug carriers with embedded active substances are introduced into the active substance deposit and are successively broken down.

19. The implant of claim 17, wherein:

a plurality of layers of biodegradable drug carriers with embedded active substances are introduced into the active substance deposit and are successively broken down.

20. The implant of claim 16, comprising:

at least one separating layer of a biodegradable material, each of which is successively broken down and which separates the various active substances from each other.

21. The implant of claim 17, comprising:

at least one separating layer of a biodegradable material, each of which is successively broken down and which separates the various active substances from each other.

22. The implant of claim 1, wherein:

regions of the surface of the implant that are outside the microdevice are covered with a layer of a biodegradable material.

23. The implant of claim 22, wherein:

the layer of biodegradable material terminates flush in a peripheral direction at a tip of the microcannulae of the microdevice or completely covers the microdevice and

a breakdown behaviour on the part of the layer is matched with the liberation behaviour of the active substance, such that liberation of the active substance begins only after complete breakdown of the layer.

24. The implant of claim 22, comprising:

self-expanding structures which promote progressive penetration of the microcannulae into the vessel wall.

25. The implant of claim 22, wherein:

the layer of biodegradable material comprises hyaluronic acid polymers with different degradation kinetics.

26. The implant of claim 1, wherein:

the implant is a stent.

27. The implant of claim 26, wherein:

the stent is adapted for use as a coronary stent.

28. The implant of claim 26, wherein:

the base body is formed at least in portion-wise manner from a biodegradable material.

29. The implant of claim 28, wherein:

the base body is formed, at least in portion-wise manner, from a magnesium alloy.

30. A process for producing a microdevice for injecting an active substance into the media of a blood vessel, comprising the steps of:

a) producing a cavity on a surface of a metallic medical implant by partial material removal, the surface being adapted to face the blood vessel wall during use;

b) covering the cavity and a peripherally extending edge of the cavity are covered with an insulating material;

c) removing additional material by electropolishing in the regions of the surface that are not covered by the insulating material; and

d) removing the insulating material by suitable solvents.

31. The method of claim 30, wherein:

the cavity-producing step is achieved by laser material removal.

32. A process for producing, on an implant, a microdevice for injecting an active substance into the media of a blood vessel, comprising the step of:

building up the microdevice stepwise by a rapid prototyping process based on microlithography steps, on a surface of the implant, the surface being adapted to face the blood vessel wall during use.